charged agent and having a delivery area, and having a source of electrical power (32) and a current controller (19, 40), the device (10) being characterized by:

the current controller (19, 40) being adapted to provide an applied pulsing **DC** current having a periodic current waveform, a pulsing frequency, and a duty cycle, the pulsing current applied to the reservoir (26, 46) and to the body surface, wherein an applied current density is defined by the applied pulsing current divided by the delivery area, and wherein **[the body surface exhibits]** a higher electrotransport agent delivery efficiency (E) **state is induced in the body surface** when the applied current density is greater than or equal to a critical current density level (I_c) and the applied pulsing current is applied for greater than or equal to a critical time period (t_c).

14. (Amended) A method of in vivo delivery of a charged agent from an electrotransport delivery device (10) through a body surface at higher electrotransport agent delivery efficiency (E) defined by the agent delivery rate per unit of applied current; the device (10) having a donor reservoir (26, 46) containing the agent and having a delivery area, and having a source of electrical power (32) and a current controller (19, 40), the method being characterized by the steps of:

adapting the current controller (19, 40) to provide an applied pulsing **DC** current having a periodic current waveform, a pulsing frequency, and a duty cycle, the pulsing current applied to the reservoir (26, 46) and to the body surface, wherein an applied current density is defined by the applied pulsing current divided by the delivery area, and wherein **[the body surface exhibits]** a higher electrotransport agent delivery efficiency (E) **state is induced in the body surface** when the applied current density is greater than or equal to a critical current density level